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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/524,191

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Christian Bartels

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EXAMINER

YAARY, MICHAEL D

ART UNIT

PAPER NUMBER

2193

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/524,191	<b>Applicant(s)</b> BARTELS, CHRISTIAN	
	<b>Examiner</b> MICHAEL YAARY	<b>Art Unit</b> 2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/11/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-20 are pending in the application.

#### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The disclosure is objected to because of the following: The specification makes mention of a computer reading the computer-readable medium containing the instructions. However, the specification lacks any definition as to the type of computer-readable medium. The specification must mention the differences between the storage medium (RAM, ROM, etc.) and transmission media (waves, signals, etc.) and the claims must refer to the storage medium to be statutory under 35 U.S.C. 101.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

- (i) Claim 1 is directed to a method. However, the claim lacks either 1) being tied to

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another statutory class (such as a particular apparatus) or 2) transforming underlying subject matter to a different state or thing (In re Bilski).

(ii) Claim 12 is rejected under 35 U.S.C. 101 because the claim is directed to non-statutory subject matter. A computer-readable medium can be interpreted to include transmission media, including coaxial cables, copper wire, fiber optics, wires that constitute a bus, and acoustic and light waves that are generated during radio wave communications. Claims drawn to components involving signals encoded with functional descriptive material do not fall within any of the categories of statutory subject matter as set forth in 35 U.S.C. 101, and are therefore, ineligible for protection. The claim needs to be limited to the "computer-readable storage medium."

(iii) Claims 2-11 and 13-20 are rejected for similar reasons as discussed for their respective parent claim, as they fail to present any limitations that resolve the deficiencies of the claim from which they depend

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Bartels et al (hereafter Bartels)("Multidimensional Adaptive Umbrella Sampling: Applications to

Main Chain and Side Chain Peptide Conformations," Journal of computational Chemistry Volume 18, No 12, Pgs. 1450-1462).

Bartels was cited in the IDS filed 02/11/2005

6. **As to claims 1 and 12**, Bartels discloses a method for sampling a stat space by iteratively generating states  $x_{i,t}$  and their weighing factors, wherein the index  $i$  is the iteration parameter and the index  $t$  distinguishes different states  $x_{i,t}$  generated by an iteration  $i$  (abstract), the method comprising:

A first step for selecting an initial sampling distribution function (pg. 1452, methodology para 1-6);

A fifth step for performing an analysis (pg. 1452, methodology para 1-6) and an iteration procedure including a second step for generating  $N_j$  states  $X_{j,t}$  by a numerical sampling algorithm and a fourth step for testing one criterion to decide whether to continue the iteration procedure or to stop the iteration procedure and to go to a fifth step in order to perform the analysis using the simulated data, (pg. 1453, Combination of Statistics from Different Simulations, column 1 and 2), wherein the iteration further includes a third step determining weighting factors for states  $x_{i,t}$  generated so far by using sampling distribution functions determined so far (Pg. 1455, calculation of observables section, columns 1 and 2) and a fitting step for determining a sampling distribution function for the next iteration for states  $X_{i,t}$  generated so far, wherein  $O(X_{i,t})$  is a function, respectively a property, of the states  $X_{i,t}$  (Pg. 1455, calculation of observables section, columns 1 and 2).

7. **As to claim 2**, Bartels discloses the sampling distribution function of at least one iteration is fitted such that it maximizes an objective function preferably defined as a function of local comparisons between the sampling distribution and the product (pg. 1453, Combination of Statistics from Different Simulations, column 1 and 2).

8. **As to claims 3 and 13**, Bartels discloses the sampling distribution function of at least one iteration is fitted such that the sampling distribution function is large for at least one stat  $X_{i,t}$  with a large product and tends to be small for states with a small product (methodology, Pg 1452, whole section).

9. **As to claim 4**, Bartels discloses the sampling distribution function of at least one iteration is a function with at least one constraint (pg. 1453, Combination of Statistics from Different Simulations, column 1 and 2).

10. **As to claims 5, 14, and 15**, Bartels discloses the sampling distribution function of at least one iteration is the distribution function of the system with constraints or multicanonical distribution function with constraints (pg. 1453, Combination of Statistics from Different Simulations, column 1 and 2).

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11. **As to claim 6**, Bartels discloses the numerical sampling algorithm of at least one iteration generates correlates states (pg. 1453, Combination of Statistics from Different Simulations, column 1 and 2).

12. **As to claim 7**, Bartels discloses the fitting is done by selecting states for which the product has extreme values and by using the selected states to define the region which has extreme values (Pg. 1455, calculation of observables section, columns 1 and 2).

13. **As to claim 8**, Bartels discloses parameters of the sampling distribution function of at least one iteration are determined by a linear least square fit of the logarithm of the un-normalized sampling distribution function to the logarithm of the product (Pg. 1455, calculation of observables section, columns 1 and 2).

14. **As to claim 9**, Bartels discloses the normalization constant of the sampling distribution function of at least one iteration is estimated from the sampled states  $X_{i,t}$  and their weighting factors (Pg. 1455, calculation of observables section, columns 1 and 2).

15. **As to claim 10**, Bartels discloses at least three iterations are done (Pg. 1455, calculation of observables section, columns 1 and 2).

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16. **As to claim 11**, Bartels discloses the function is a function of a set of at least two functions (pg. 1453, Combination of Statistics from Different Simulations, column 1 and 2).

17. **As to claim 16**, the claim is rejected for similar reasons as claims 2 and 6 above.

18. **As to claim 17**, Bartels discloses the function is a function of a set of at least two functions, including at least one of the following functions:

At least one property for which at least one estimate is derived in the analysis of the fifth step, at least one function that is large for states that must be sampled to ensure transitions between important regions, the inverse of the probability distribution function of at least one property of the system, and the inverse of the probability distribution of the negative logarithm of the distribution function of the system (pg. 1453, Combination of Statistics from Different Simulations, column 1 and 2 and Pg. 1455, calculation of observables section, columns 1 and 2).

19. **As to claims 18-20**, Bartels discloses a computer-readable medium comprising executable program instructions configured to cause a computer to perform the method of claim 1, a computer program, adapted to cause a computer to perform the method of claim 1, and a computer-readable medium comprising the computer program of claim 19 (Inherent in the teachings of Bartels as, a computer-readable medium containing



program instructions to be executed in a computer is necessary to perform the calculations.).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL YAARY whose telephone number is (571)270-1249. The examiner can normally be reached on Mon-Fri 9 a.m.-5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. Y./

Examiner, Art Unit 2193

/Lewis A. Bullock, Jr./

Supervisory Patent Examiner, Art Unit 2193